

COMPLETE LISTING OF CLAIMS
IN ASCENDING ORDER WITH STATUS INDICATOR

Claim 1 (currently amended): A semiconductor device manufacturing system for manufacturing a semiconductor device on a wafer, comprising:

a first exposure apparatus for ~~exposing said wafer using~~ forming one part of a pattern of the semiconductor device on the wafer by exposing a light source while moving said wafer with a predetermined interval; and

a second exposure apparatus for ~~exposing said wafer~~ forming the other part of said pattern of the semiconductor device on the wafer by irradiating a plurality of electron beams on said wafer, said plurality of electron beams having an interval of substantially N times or 1/N times, where N is a natural number, of said predetermined interval.

Claim 2 (currently amended): A semiconductor device manufacturing system as claimed in claim 1 wherein for manufacturing a semiconductor device on a wafer, comprising:

a first exposure apparatus for exposing said wafer using a light source while moving said wafer with a predetermined interval; and

a second exposure apparatus for exposing said wafer by irradiating a plurality of electron beams on said wafer, said plurality of electron beams having an interval of substantially N times or 1/N times, where N is a natural number, of said predetermined interval, wherein

said second exposure apparatus has a plurality of multi-axis electron lenses that converge each beam of said plurality of electron beams independently; and

each of said multi-axis electron lenses has a plurality of lens opening parts for said plurality of electron beams to pass through; and

said lens opening parts are separated with an interval of substantially N times or 1/N times of said predetermined interval of said first exposure apparatus for moving said wafer.

Claim 3 (original): A semiconductor device manufacturing system as claimed in claim 2, wherein: each said multi-axis electron lens has a plurality of dummy opening parts, through which the electron beams do not pass, arranged around a periphery of said plurality of lens opening parts.

Claim 4 (original): A semiconductor device manufacturing system as claimed in claim 2, wherein:

- each said multi-axis electron lens has a lens unit that includes said lens opening parts; and said lens opening parts are arranged to be uniformly distributed all over said lens unit.

Claim 5 (original): A semiconductor device manufacturing system as claimed in claim 2, wherein:

- each said multi-axis electron lens has a lens unit that includes said lens opening parts; and said lens opening parts are arranged in said lens unit in a belt-like shape.

Claim 6 (original): A semiconductor device manufacturing system as claimed in claim 4 or 5, wherein: said lens opening parts at a center region of said lens unit have a diameter that is smaller than the diameter of said lens opening parts at an outer region of said lens unit.

Claim 7 (original): A semiconductor device manufacturing system as claimed in claim 4 or 5, wherein:

- said lens unit includes a first lens-part magnetic conductive member and a second lens-part magnetic conductive member that are arranged substantially parallel to each other with a space in between; and

- said lens unit further includes a nonmagnetic conductive member in the space between said first lens-part magnetic conductive member and said second lens-part magnetic conductive member.

Claim 8 (original): A semiconductor device manufacturing system as claimed in claim 2, wherein:

each said multi-axis electron lens has a lens unit that includes said lens opening parts and a coil unit provided around said lens unit for generating magnetic fields; and

said coil unit includes a coil part magnetic conductive member, which is a magnetic conductive member, and a coil for generating said magnetic fields; and

said lens unit includes a plurality of lens-part magnetic conductive members, which are magnetic conductive members; and

magnetic permeability of a material that forms said coil-part magnetic conductive member and magnetic permeability of a material that forms said lens-part magnetic conductive members are different.

Claim 9 (original): A semiconductor device manufacturing system as claimed in claim 1, wherein:

said second exposure apparatus has a plurality of deflectors that deflect each beam of said plurality of electron beams independently; and

said deflectors are separated with an interval of substantially N times or 1/N times of said predetermined interval.

Claim 10 (currently amended): An electron beam exposure apparatus for exposing a wafer, in combination with exposure by an optical stepper, using a plurality of electron beams, comprising:

an optical stepper; and

an exposure unit for exposing said wafer by irradiating said plurality of electron beams on said wafer in combination with exposure by said optical stepper, said plurality of electron beams having an interval of substantially N times or 1/N times, where N is a natural number, of a predetermined interval of said optical stepper for moving said wafer.

Claim 11 (original): An electron beam exposure apparatus as claimed in claim 10, wherein:
said exposure unit has a plurality of multi-axis electron lenses that converges each beam of
said plurality of electron beams independently; and
each of said multi-axis electron lenses has a plurality of lens opening parts for passage of
said plurality of electron beams; and
said lens opening parts are separated with an interval of substantially N times or 1/N times
of said predetermined interval.

Claim 12 (original): An electron beam exposure apparatus as claimed in claim 11, wherein:
each said multi-axis electron lens has a plurality of dummy opening parts, through which the
electron beams do not pass, arranged around a periphery of said plurality of lens opening parts.

Claim 13 (original): An electron beam exposure apparatus as claimed in claim 11, wherein:
each said multi-axis electron lens has a lens unit that includes a plurality of said lens opening
parts; and
said lens opening parts are arranged to be substantially uniform all over said lens unit.

Claim 14 (original): An electron beam exposure apparatus as claimed in claim 11, wherein:
each said multi-axis electron lens has a lens unit that includes said lens opening parts; and
said lens opening parts are provided in said lens unit such that said lens opening parts form a
belt-like shape.

Claim 15 (original): An electron beam exposure apparatus as claimed in claim 13 or 14,
wherein: said lens opening parts at a center region of said lens unit have a diameter that is smaller
than the diameter of said lens opening parts at an outer region of said lens unit.

Claim 16 (original): An electron beam exposure apparatus as claimed in claim 13 or 14, wherein:

 said lens unit includes a first lens-part magnetic conductive member and a second lens-part magnetic conductive member that are arranged substantially parallel to each other with a space in between; and

 said lens unit further includes a nonmagnetic conductive member in the space between said first lens-part magnetic conductive member and said second lens-part magnetic conductive member.

Claim 17 (original): An electron beam exposure apparatus as claimed in claim 11, wherein:
 each said multi-axis electron lens has a lens unit that includes said lens opening parts and a coil unit provided around said lens unit for generating magnetic fields; and

 said coil unit includes a coil part magnetic conductive member, which is a magnetic conductive member, and a coil for generating said magnetic fields; and

 said lens unit includes a plurality of lens-part magnetic conductive members, which are magnetic conductive members; and

 magnetic permeability of a material that forms said coil-part magnetic conductive member and magnetic permeability of a material that forms said lens-part magnetic conductive members are different.

Claim 18 (original): An electron beam exposure apparatus as claimed in claim 10, wherein:
 said exposure unit has a plurality of deflectors that deflect each beam of said plurality of electron beams independently; and
 said deflectors are separated with an interval of substantially N times or 1/N times of said predetermined interval.

Claim 19 (canceled)